

IN THE CLAIMS

1-9. (Cancelled)

10. (Currently Amended) The data compression system according to claim 6 26, wherein said decompression unit is configured to transmit compression conditions for each cutting out of the original time series data to the compression unit through the network based on a supervisory result of the reconstructed time series data based on the original time series data, said compression unit is configured to generate the compression code according to the compression conditions, and wherein said decompression unit sequentially decompresses the transmitted compression code to display thereon the decompressed data.

11. (Currently Amended) The data compression system according to claim 6 26, wherein said compression unit, for each cutting out of the original time series data, is configured to assemble the local peak values of the respective component waveforms of the respective levels of in their respective frequencies so as to generate compression codes based on the respective assembled local peak values, said compression codes correspondingly including the respective assembled local peak values, and sequentially generates one of the compression codes and transmits the generated one of the compression codes, starting from one of the compression codes corresponding to the lowest frequency up to one of the compression codes corresponding to the highest frequency, and wherein said decompression unit receives the sequentially transmitted compression codes to reconstruct each of the compression codes, thereby sequentially displaying the reconstructed compression codes.

12. (Currently Amended) The data compression system according to claim 6 26, wherein said compression unit, for each cutting out of the original time series data, is

configured to assemble the local peak values of the respective transform coefficients by using one of the threshold values which is sequentially selected in threshold values in descending order so that each of absolute values of each of the assembled groups of local peak values is larger than each of the selected one of the threshold values to generate compression codes based on the respective assembled groups of the local peak values, said compression codes correspondingly including the respective assembled local peak values, and sequentially generates one of the compression codes and transmits the generated one of the compression codes, starting from one of the compression codes corresponding to the largest threshold value up to one of the compression codes corresponding to the lowest threshold value, and wherein said decompression unit is configured to receive the sequentially transmitted compression codes to reconstruct each of the compression codes, thereby sequentially displaying the reconstructed compression codes.

13. (Currently Amended) The data compression system according to claim 6 26, wherein said compression unit comprises:

a first means, for each cutting out of the original time series data, for assembling the local peak values of the respective component waveforms of the respective levels in their respective frequencies so as to generate compression codes based on the respective assembled local peak values, said compression codes correspondingly including the respective assembled local peak values, and sequentially generates one of the compression codes and transmits the generated one of the compression codes, starting from one of the compression codes corresponding to the lowest frequency up to one of the compression codes corresponding to the highest frequency; and

a second means, for each cutting out of the original time series data, for assembling the local peak values of the respective transform coefficients by using one of the threshold

values which is sequentially selected in threshold values in descending order so that each of absolute values of each of the assembled groups of local peak values is larger than each of the selected one of the threshold values to generate compression codes based on the respective assembled groups of the local peak values, said compression codes correspondingly including the respective assembled local peak values, and sequentially generates one of the compression codes and transmits the generated one of the compression codes, starting from one of the compression codes corresponding to the largest threshold value up to one of the compression codes corresponding to the lowest threshold value, and

wherein said decompression unit is configured to receive the sequentially transmitted compression codes so as to reconstruct each of the compression codes, thereby sequentially displaying the reconstructed compression codes.

14. (Original) The data compression system according to claim 13, when detecting a signal change as for the original time series data on the basis of each waveform component of each level of the original time series data, wherein said compression unit generates the compression codes by using one of the first and second means to transmit the generated compression codes, said decompression unit receives each of the compression codes to reconstruct each of the compression codes of each decomposition level thereby sequentially displaying the reconstructed compression codes, and evaluate, on the basis of the reconstructed time series data, validity of a control model to transmit the evaluated result to the compression unit, if necessary, reconstruct the control model and transmit the model parameter to the compression unit, and wherein said compression unit update the control model to improve control performance thereof.

15-21. (Cancelled)

22. (Currently Amended) The data compression system according to claim ~~21~~ 26, wherein said one of the component waveforms having the low frequency of the final level is one of a smoothed signal value and an average value of the original time series data.

23. (Currently Amended) The data compression system according to claim ~~21~~ 26, further comprising:

a modeling unit configured to generate a model parameter based on the control model identifying the correlation of input and output; and

an extended compression code generating unit configured to generate an extended compression code based on the first compression code and the model parameter.

24. (New) The data compression system according to claim ~~21~~ 26, wherein said original time series data includes a first time series data and a second time series data, the first and second time series data having a correlation of input and output as a control model with each other, the first time series data corresponding to the input, the second time series data corresponding to the output;

said compression unit is configured to generate a first compression code by compressing the first time series data; and

said transmitting unit is configured to transmit the extended compression code through the network.

25. (Previously Presented) The data compression system according to claim 24, further comprising a decompression unit being intercommunicated through the network with the transmitting unit, the decompression unit comprising:

a receiving unit configured to receive the transmitted extended compression code;  
a separator unit configured to separate the transmitted extended compression code into the first compression code and the model parameter;  
an inverse wavelet transform unit configured to perform an inverse wavelet transform to the first compression code to reconstruct the first time series data; and  
a reconstruction unit configured to reconstruct the second time series data based on the reconstructed first time series data and the model parameter.

26. (New) A data compression system for compressing original time series data with a various waveform, comprising:

a compression unit configured to generate a compression code by compressing the original time series data without damaging characteristics of waveform information in the various waveform, the waveform information including a signal with a various change including one of a step-like signal change and a local signal average value;

a transmitting unit configured to transmit the compression code through a network;  
and

a decompression unit being intercommunicated through the network with the transmitting unit;

wherein said compression unit is configured to perform a wavelet transform to the original time series data by using a mother wavelet function to decompose the original time series data into a predetermined level number of component waveforms, each of the waveforms of each level having local peak value data, to extract at least one of the local peak value data of each of the component waveforms, to refer to a mother wavelet code transform table by using a mother wavelet function code corresponding to the mother wavelet function to extract a transform code,

wherein the compression code includes the extracted local peak value data, one of the component waveforms having a low frequency of a final level, the transform code, and a number of decomposition levels, and

the extracted local peak value data includes a peak value which is not less than a predetermined threshold value thereof and a position in a data-frame of each level thereof;

said decompression unit comprising:

a receiving unit configured to receive the transmitted compression code; and

an inverse wavelet transform unit configured to perform an inverse wavelet transform to the compression code to reconstruct time series data having the characteristics of the waveform information of the original time series data, said inverse wavelet transform unit stores thereon the mother wavelet code table, refers the mother wavelet code table by using the transform code of the compression code to extract the mother wavelet function code and decompresses the compression code by using the mother wavelet function code.

27. (New) A data compression system for compressing original time series data with a various waveform, comprising:

a compression unit configured to generate a compression code by compressing the original time series data without damaging characteristics of a waveform information in the various waveform, the waveform information including a signal with a various change including one of a step-like signal change and a local signal average value;

a transmitting unit configured to transmit the compression code through a network;

a decompression unit being intercommunicated through the network with the transmitting unit; and

a storing unit storing thereon a mother wavelet code table,

wherein said compression unit is configured to perform a wavelet transform to the original time series data by using a mother wavelet function to decompose the original time series data into a predetermined level number of component waveforms, each of the waveforms of each level having local peak value data, to extract at least one of the local peak value data of each of the component waveforms, to inquire a transform code of the storing unit by using a mother wavelet function code corresponding to the mother wavelet function to extract the transform code issued by the storing unit based on the mother wavelet code transform table,

wherein the compression code includes the extracted local peak value data, one of the component waveforms having a low frequency of a final level, the transform code, and a number of decomposition levels, and

the extracted local peak value data includes a peak value which is not less than a predetermined threshold value thereof and a position in a data-frame of each level thereof;

said decompression unit comprising:

a receiving unit configured to receive the transmitted compression code; and

an inverse wavelet transform unit configured to perform an inverse wavelet transform to the compression code to reconstruct time series data having the characteristics of the waveform information of the original time series data, said inverse wavelet transform unit inquires the mother wavelet function code of the storing unit by using the transform code to extract the mother wavelet function code issued by the storing unit on the basis of the mother wavelet code transform table, and decompresses the compression code by using the mother wavelet function code.

28. (New) The data compression system according to claim 27, wherein said one of the component waveforms having the low frequency of the final level is one of a smoothed signal value and an average of the original time series data.

29. (New) The data compression system according to claim 27, further comprising:  
a modeling unit configured to generate a model parameter based on the control model identifying the correlation of input and output; and  
an extended compression code generating unit configured to generate an extended compression code based on the first compression code and the model parameter.

30. (New) The data compression system according to claim 27, wherein said original time series data includes first time series data and second time series data, the first and second time series data having a correlation of input and output as a control model with each other, the first time series data corresponding to the input, the second time series data corresponding to the output;

said compression unit is configured to generate a first compression code by compressing the first time series data;

the system further comprising an extended compression code generating unit configured to generate an extended compression code based on the first compression code and a model parameter corresponding to the control model; and

said transmitting unit is configured to transmit the extended compression code through the network.

31. (New) The data compression system according to claim 30, wherein said receiving unit is configured to receive the transmitted extended compression code;



the system further comprising a separator unit configured to separate the transmitted extended compression code into the first compression code and the model parameter;

said inverse wavelet transform unit is configured to perform the inverse wavelet transform on the first compression code to reconstruct the first time series data; and

a reconstruction unit is configured to reconstruct the second time series data based on the reconstructed first time series data and the model parameter.

32. (New) The data compression system according to claim 27, wherein said decompression unit is configured to transmit compression conditions for each cutting out of the original time series data to the compression unit through the network based on a supervisory result of the reconstructed time series data based on the original time series data;

said compression unit is configured to generate the compression code according to the compression conditions; and

wherein said decompression unit sequentially decompresses the transmitted compression code to display thereon the decompressed data.

33. (New) The data compression system according to claim 27, wherein said compression unit, for each cutting out of the original time series data, is configured to assemble the local peak values of the respective component waveform of the respective levels of their respective frequencies so as to generate compression codes based on the respective assembled local peak values, said compression codes correspondingly including the respective assembled local peak values, and sequentially generates one of the compression codes and transmits the generated one of the compression codes, starting from one of the compression codes corresponding to the lowest frequency up to one of the compression codes corresponding to the highest frequency, and

wherein said decompression unit receives the sequentially transmitted compression codes to reconstruct each of the compression codes, thereby sequentially displaying the reconstructed compression codes.

34. (New) The data compression system according to claim 27, wherein said compression unit, for each cutting out of the original time series data, is configured to assemble the local peak values of the respective transform coefficients by using one of the threshold values which is sequentially selected in threshold values in descending order so that each of absolute values of each of the assembled groups of local peak values is larger than each of the selected one of the threshold values to generate compression codes based on the respective assembled groups of the local peak values, said compression codes correspondingly including the respective assembled local peak values; and

sequentially generates one of the compression codes and transmits generated one of the compression codes, starting from one of the compression codes corresponding to the largest threshold value up to one of the compression codes corresponding to the lowest threshold value; and

wherein said decompression unit receives the sequentially transmitted compression codes to reconstruct each of the compression codes, thereby sequentially displaying the reconstructed compression codes.

35. (New) The data compression system according to claim 27, wherein said compression unit comprises a first means, for each cutting out of the original time series data, for assembling the local peak values of the respective component waveforms of the respective levels of their respective frequencies so as to generate compression codes based on the respective assembled local peak values, said compression codes correspondingly

including the respective assembled local peak values, and sequentially generates one of the compression codes and transmits a generated one of the compression codes, starting from one of the compression codes corresponding to the lowest frequency up to one of the compression codes corresponding to the highest frequency;

and a second means, for each cutting out of the original time series data, for assembling the local peak values of the respective transform coefficients by using one of the threshold values which is sequentially selected in threshold values in descending order so that each of absolute values of each of the assembled groups of local peak values is larger than each of the selected one of the threshold values to generate compression codes based on the respective assembled groups of the local peak values, said compression codes correspondingly including the respective assembled local peak values, and sequentially generates one of the compression codes and transmits a generated one of the compression codes, starting from one of the compression codes corresponding to the largest threshold value up to one of the compression codes corresponding to the lowest threshold value; and

wherein said decompression unit receives the sequentially transmitted compression codes so as to reconstruct each of the compression codes, thereby sequentially displaying the reconstructed compression codes.

36. (New) The data compression system according to claim 35, when detecting a signal change as for the original time series data on the basis of each waveform component of each level of the original time series data, wherein said compression unit generates the compression codes by using one of the first and second means to transmit the generated compression codes, said decompression unit receives each of the compression codes to reconstruct each of the compression codes of each decomposition level thereby sequentially displaying the reconstructed compression codes, and evaluates, based on the reconstructed

time series data, validity of a control model to transmit the evaluated result to the compression unit, if necessary, to reconstruct the control model and transmit the model parameter to the compression unit; and

wherein said compression unit is configured to update the control model to improve control performance thereof.